


# SEATING ARRANGEMENTS and MEANS OF EGRESS

Use this section to answer the following questions:

- ... For a tent in excess of 400 sq. ft., does one use Table 3103.12.2, *Number*, to determine the minimum number of means of egress?
- ... Are there any means of egress requirements for a tent 400 sq. ft. or less?
- ... If chairs are used in a tent 400 sq. ft. or less, does the seating have to meet Chapter 10?



## SEATING ARRANGEMENTS

 **SEATING IN TENTS OR MEMBRANE STRUCTURES SHALL  
BE IN ACCORDANCE WITH CHAPTER 10.**

## MEANS OF EGRESS

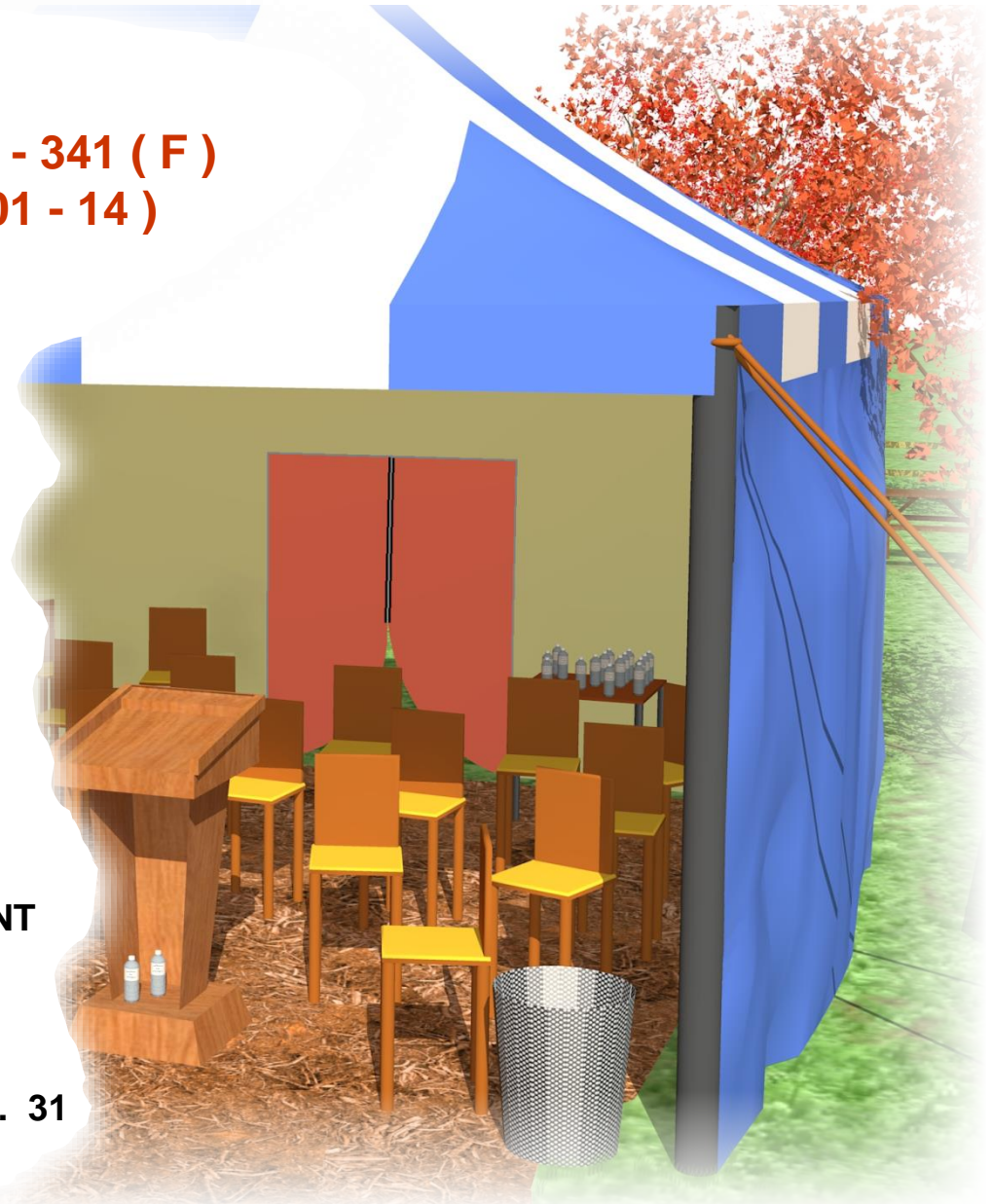
 **MEANS OF EGRESS FOR TEMPORARY TENTS AND  
MEMBRANE STRUCTURES SHALL BE IN ACCORDANCE  
WITH SECTIONS 3103.12.1 THROUGH 3103.12.8**



# SEATING ARRANGEMENTS

**Amendment; LSA Doc. # 13 - 341 ( F )  
675 IAC 22 - 2.5 ( eff. 12 - 01 - 14 )**

- **THIS SCENARIO IS A “SCOPE”  
TENT; 400 SQ. FT. OR LESS**
- **WITH CHAIRS AND A  
LECTERN INSIDE THE TENT**
- **DUE TO THE SIZE OF THIS TENT  
AND THE ACTIVITY INSIDE THE TENT**
- **THE *SCOPE* IS THE ONLY  
APPLICABLE CODE SECTION IN CH. 31**

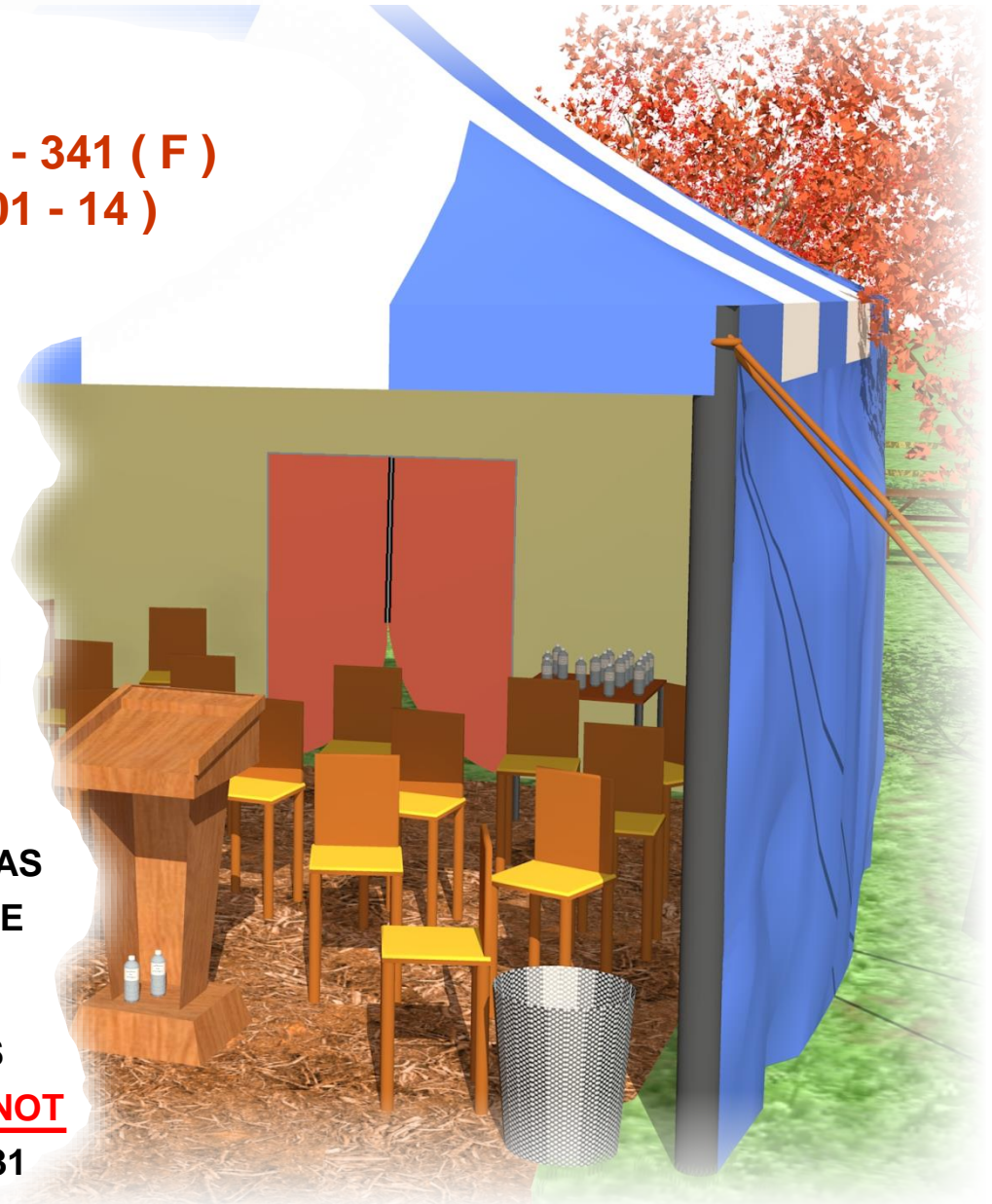




# SEATING ARRANGEMENTS

**Amendment; LSA Doc. # 13 - 341 ( F )  
675 IAC 22 - 2.5 ( eff. 12 - 01 - 14 )**

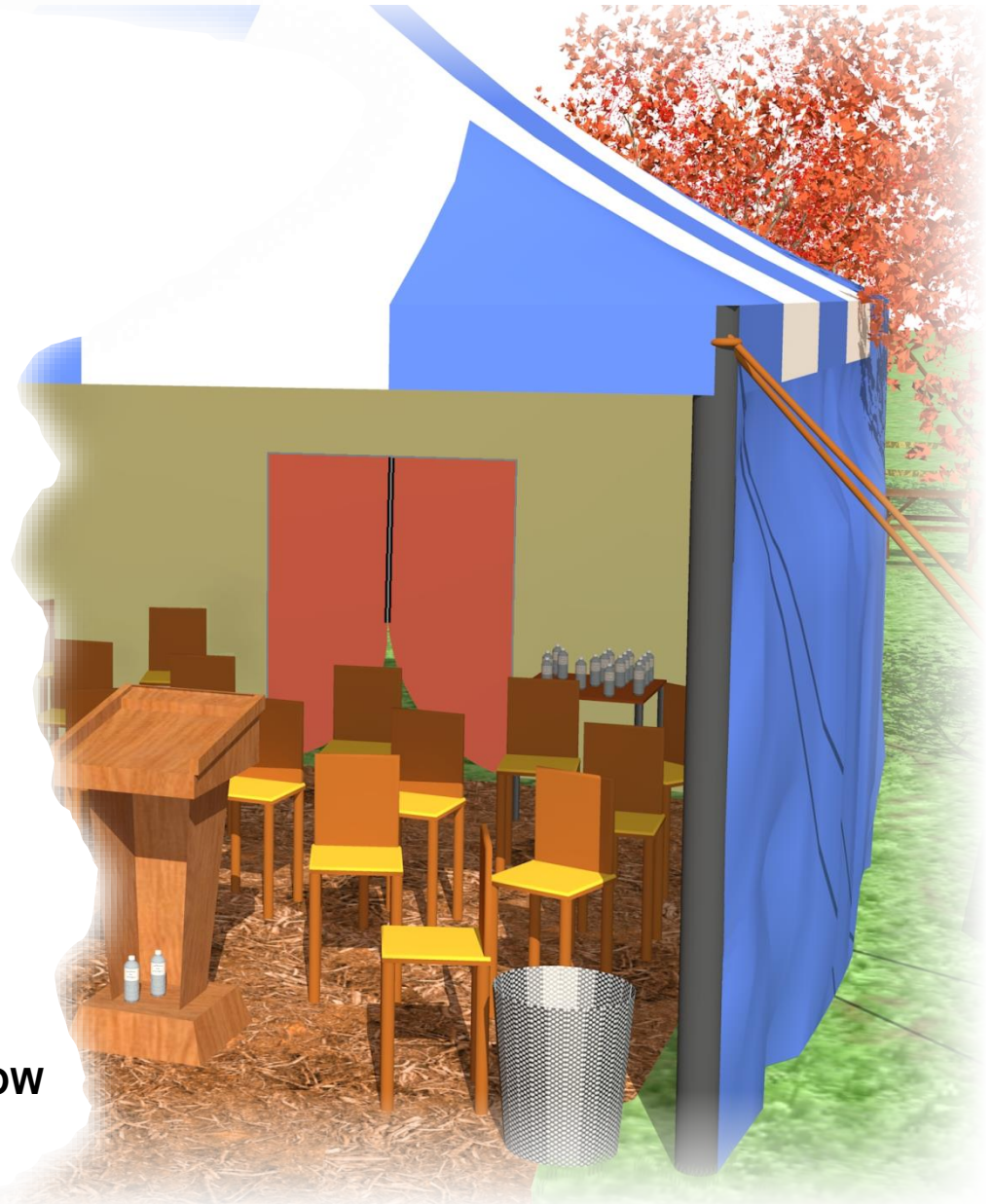
- THE 3 CODE SECTIONS AMENDED IN THE *SCOPE* ARE 3104.7, 3104.15.5 AND 3104.15.6
- THESE 3 CODE SECTIONS PERTAIN TO OPEN OR EXPOSED FLAME AND / OR COOKING
- THE ACTIVITY INSIDE THIS TENT HAS NOTHING TO DO WITH OPEN FLAME AND / OR COOKING, THEREFORE,
- DUE TO THE WAY THE *SCOPE* HAS BEEN WRITTEN, THIS TENT DOES **NOT** HAVE TO MEET ANYTHING IN CH. 31



# SEATING ARRANGEMENTS

## “Scope” Tents

- DUE TO THE *SCOPE*, THIS TENT WITH CHAIRS INSIDE DOES NOT HAVE TO MEET SEC. 3103.11
- THE SEATING INSIDE THIS TENT DOES NOT HAVE TO BE IN ACCORDANCE WITH CH. 10
- THE REMOVAL OF THE SIDEWALLS OR DROPS DOES NOT CHANGE HOW THIS SCENARIO IS HANDLED



# **SUMMARY:** the following code sections govern this scenario

## ■ **Sec. 3101.1 – Scope**

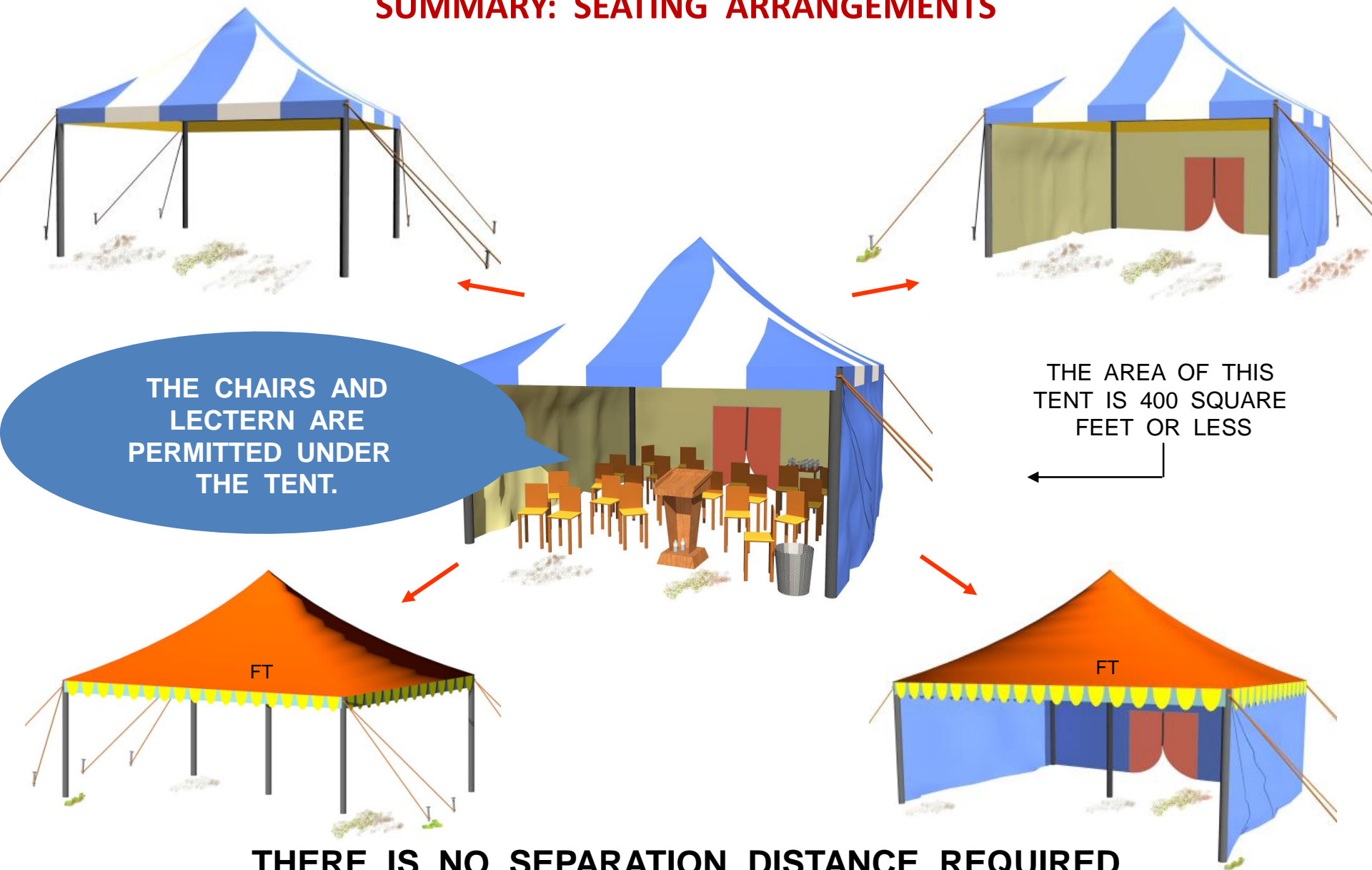
THIS IS THE ONLY CODE  
SECTION THAT APPLIES IN CH. 31.



CHAIRS AND A LECTERN  
UNDER A "SCOPE" TENT



## SUMMARY: SEATING ARRANGEMENTS



**THERE IS NO SEPARATION DISTANCE REQUIRED  
BETWEEN THIS TENT AND THE OTHER TENTS**





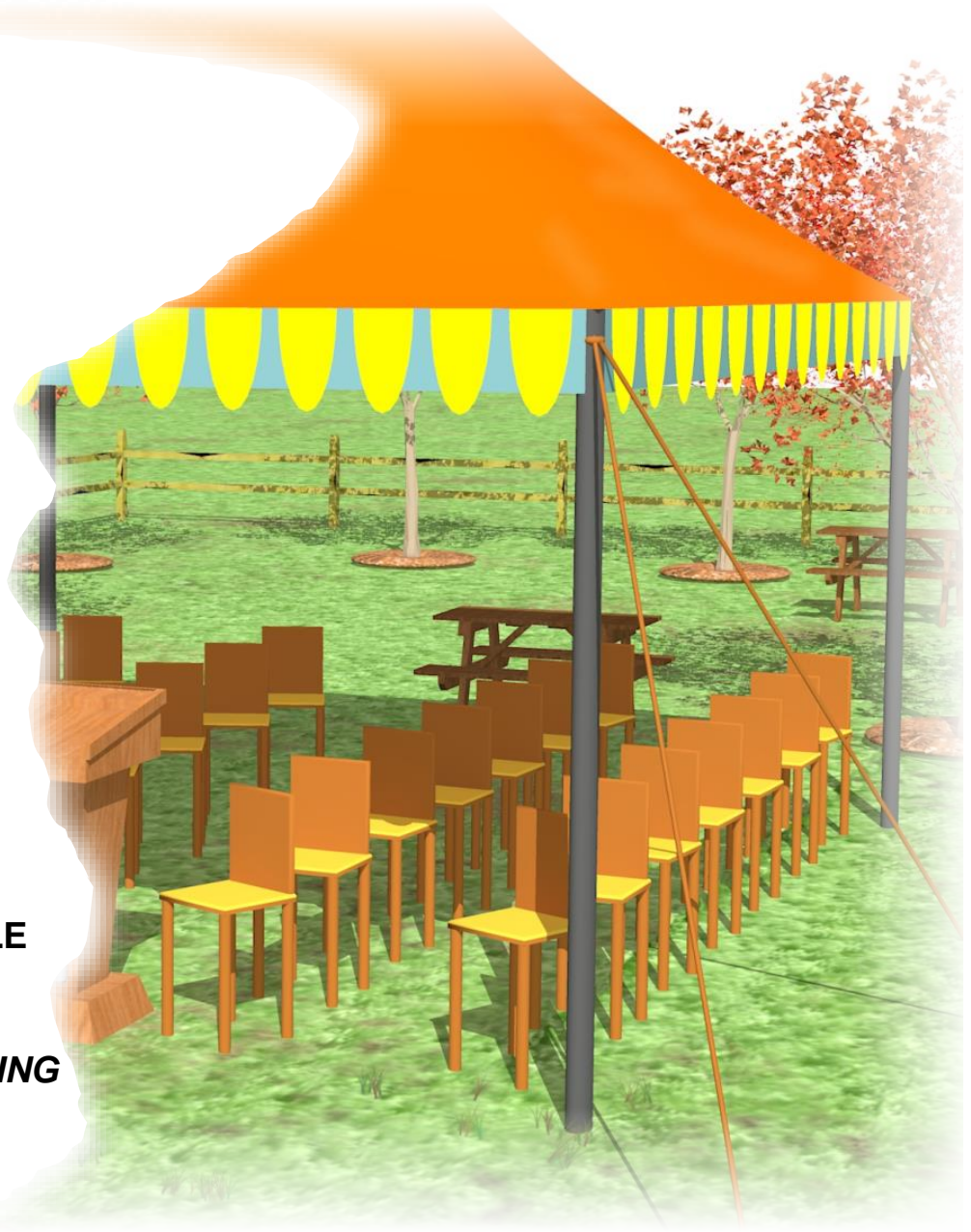
FT



# SEATING ARRANGEMENTS

## “Regular” Tents

- THIS SCENARIO IS A “REGULAR” TENT; 401 SQ. FT.
- WITH CHAIRS AND A LECTERN INSIDE THE TENT
- DUE TO THE SIZE OF THIS TENT, ALL OF CHAPTER 31 IS APPLICABLE
- THEREFORE, SECTION 3103.11, *SEATING ARRANGEMENTS*, APPLIES





# SEATING ARRANGEMENTS

## Aisle accessways for seating in rows

- In this scenario, there are only rows of chairs and a lectern. There are no tables being used. This is why an occupant load factor of 7 net was chosen from Table 1004.1.2, IFC, 2014 ed. (a factor of 7 net is described as concentrated, chairs only – not fixed.) Knowing that the smallest size possible for a “regular” tent is 401 square feet, (rounding up the tent size to the next whole number), the occupant load equals 57 people. Per Sec. 3103.3, *Place of Assembly*, this tent is a place of assembly because the occupant load is 50 or more.

con't. on the next slide

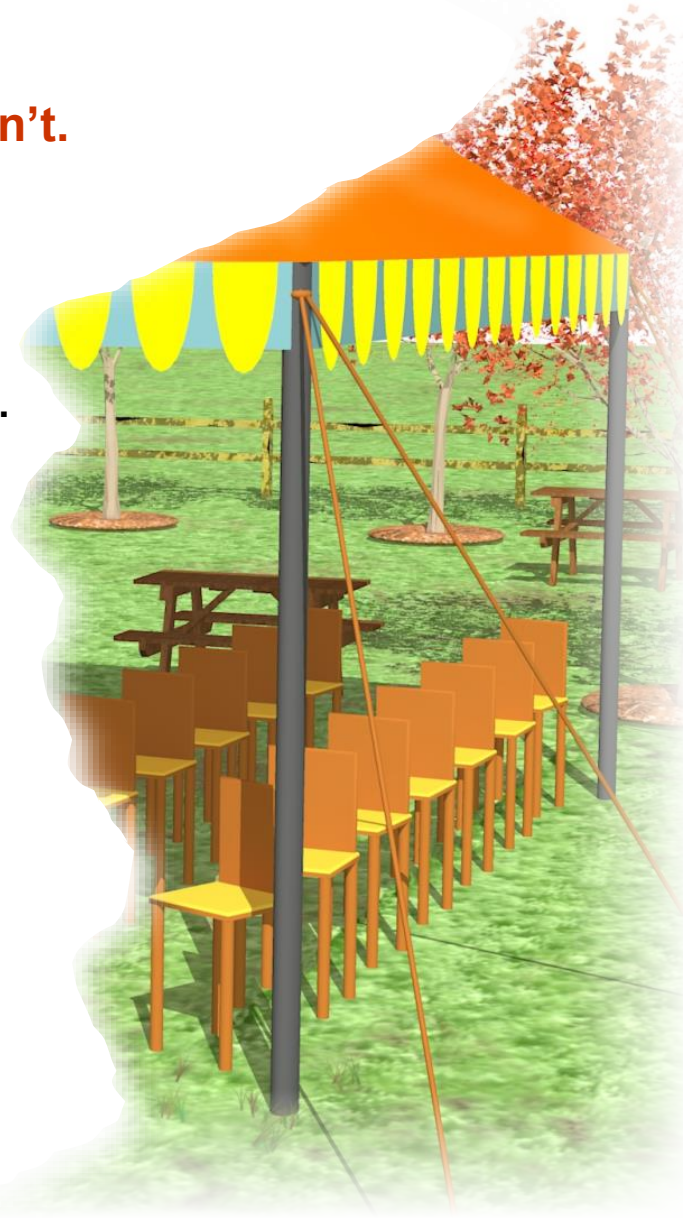


# SEATING ARRANGEMENTS

## Aisle accessways for seating in rows, con't.

- To determine the spacing of the chairs, Sec. 3103.11, *Seating Arrangements*, says to go to Chapter 10. Section 1028 is titled *Assembly*, and specifically Sec. 1028.10 is titled *Aisle Accessways*. For seating in rows, use Sections 1028.10.2 thru 1028.10.2.2. Section 1028.12, *Seat Stability*, is also applicable to this scenario.

This is how one determines the distance the chairs have to be from one another under this tent.







FT



# SEATING ARRANGEMENTS

## “Regular” Tents

- THIS SCENARIO IS A “REGULAR” TENT; 401 SQ. FT.
- WITH CHAIRS, TABLES AND A LECTERN INSIDE THE TENT
- DUE TO THE SIZE OF THIS TENT, ALL OF CHAPTER 31 IS APPLICABLE
- THEREFORE, SECTION 3103.11, *SEATING ARRANGEMENTS*, APPLIES



# SEATING ARRANGEMENTS

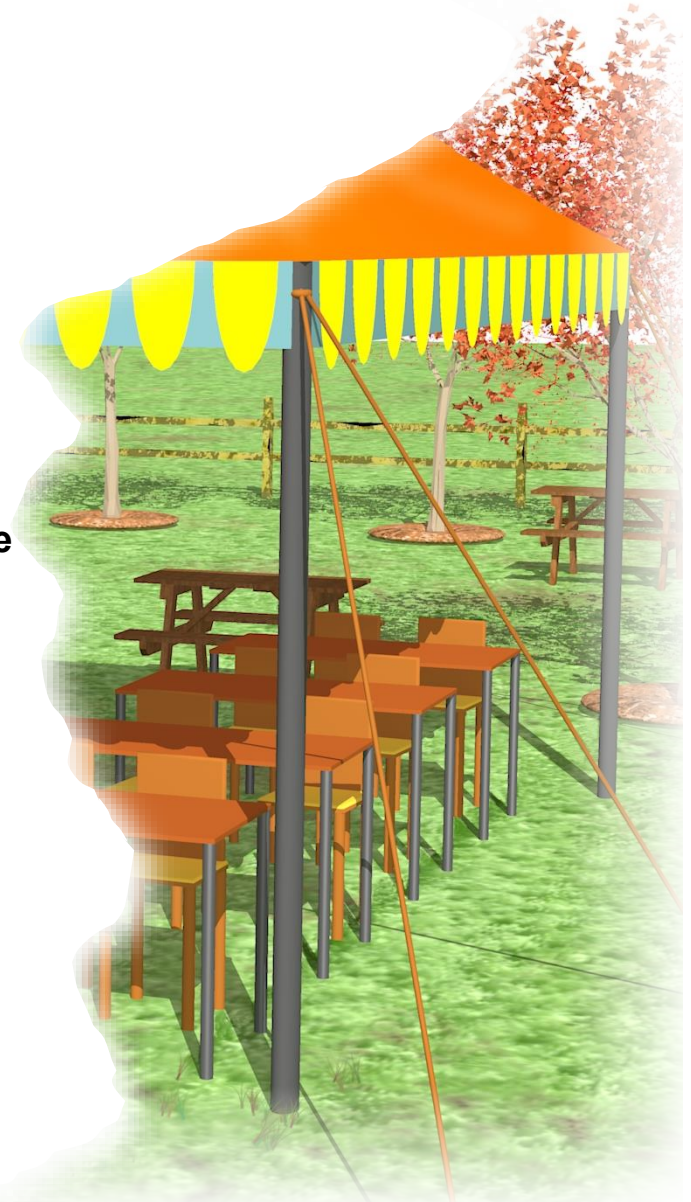
## Aisle accessways for seating at tables

- When tables are used ( along with chairs ), things change a bit. We know that a place of assembly from Sec. 3103.3, *Place of Assembly*, doesn't begin until the occupant load is 50 or more. When a “regular” tent with tables and chairs is used and the tent is 401 sq. ft. ( rounding up the tent size to the next whole number ), the occupant load is only 26. This is found by using an occupant load factor of 15 net from Table 1004.1.2, IFC, 2014 ed. ( a factor of 15 net is described as unconcentrated, tables and chairs. )

Knowing that Sec. 3103.11, *Seating Arrangements*, sends one to Chapter 10 and knowing that Section 1028, *Assembly*, is where the requirements are

con't. on the next slide

Sec. 3103.11



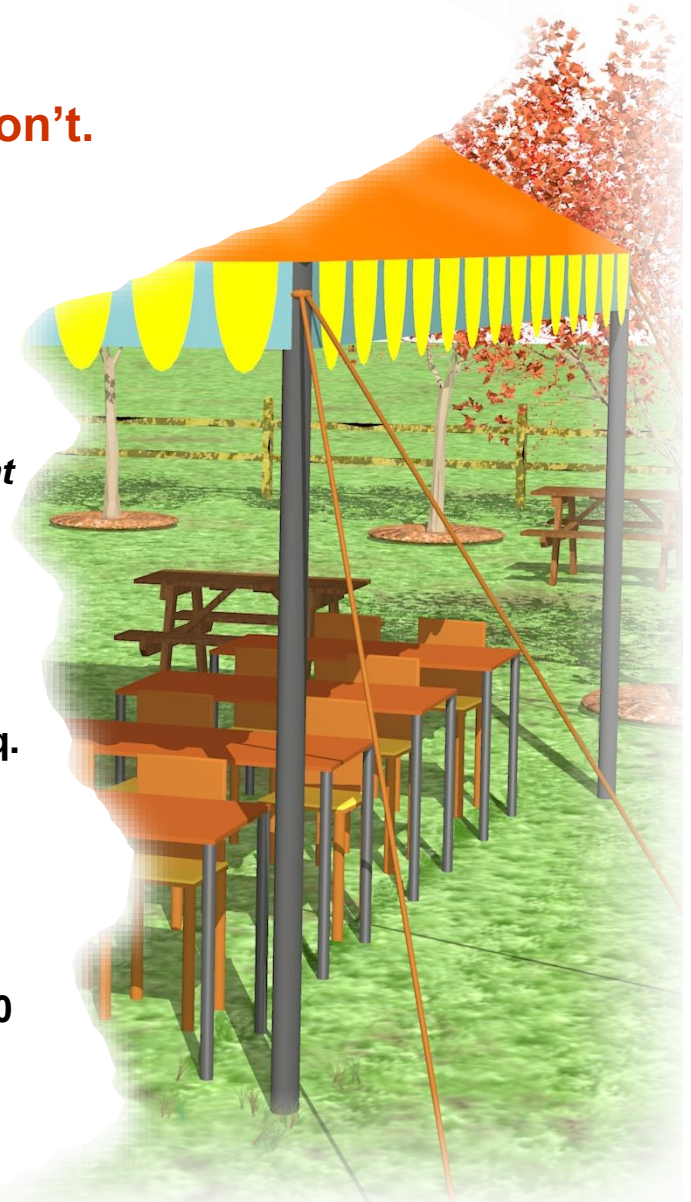
# SEATING ARRANGEMENTS

## Aisle accessways for seating at tables, con't.

- found for aisle accessways for seating at tables, one could argue that due to the occupant load being only 26, nothing in Sec. 1028 applies. ( specifically, Sec. 1028.10.1 thru 1028.10.1.2. Also, Sec. 1028.12, *Seat Stability.* )

The smallest “regular” tent using tables and chairs which qualifies as a place of assembly is 750 sq. ft. ( $750 \div 15 = 50$  ) So, there appears to be a gap, 401 sq. ft. up to 749 sq. ft., where the rules for aisle accessways for seating at tables in a “regular” tent can’t be found.

When a “regular” tent using tables and chairs is 750 sq. ft. or larger, go to Chapter 10 and one will find the rules for aisle accessways for seating at tables.






## SEATING ARRANGEMENTS



SEATING IN TENTS OR MEMBRANE STRUCTURES SHALL  
BE IN ACCORDANCE WITH CHAPTER 10.

## MEANS OF EGRESS

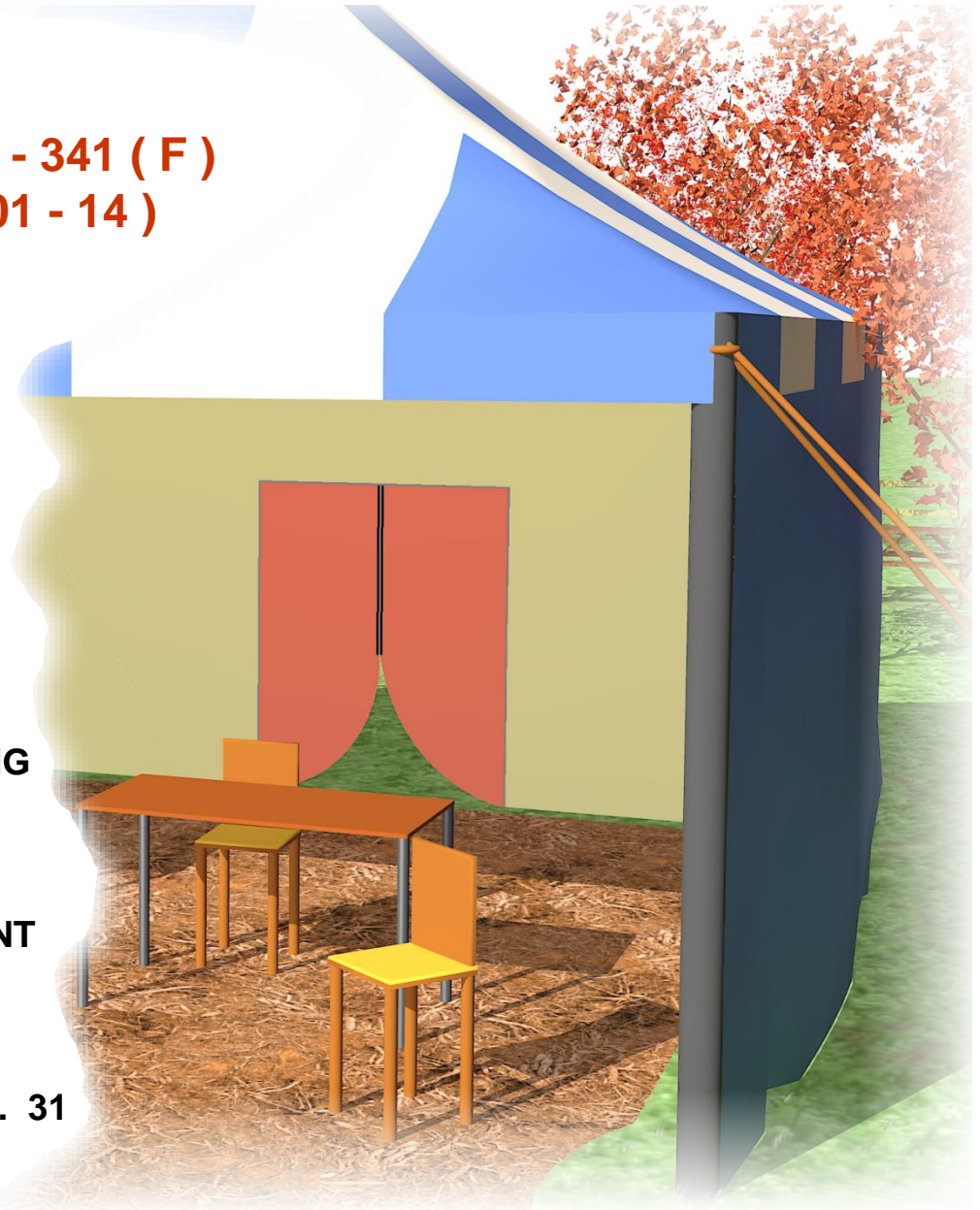


**MEANS OF EGRESS FOR TEMPORARY TENTS AND  
MEMBRANE STRUCTURES SHALL BE IN ACCORDANCE  
WITH SECTIONS 3103.12.1 THROUGH 3103.12.8**

# MEANS OF EGRESS

**Amendment; LSA Doc. # 13 - 341 ( F )  
675 IAC 22 - 2.5 ( eff. 12 - 01 - 14 )**

- **THIS SCENARIO IS A “SCOPE” TENT; 400 SQ. FT. OR LESS**
- **WITH AN ACTIVITY INSIDE THE TENT OTHER THAN OPEN OR EXPOSED FLAME AND / OR COOKING**
- **DUE TO THE SIZE OF THIS TENT AND THE ACTIVITY INSIDE THE TENT**
- **THE *SCOPE* IS THE ONLY APPLICABLE CODE SECTION IN CH. 31**

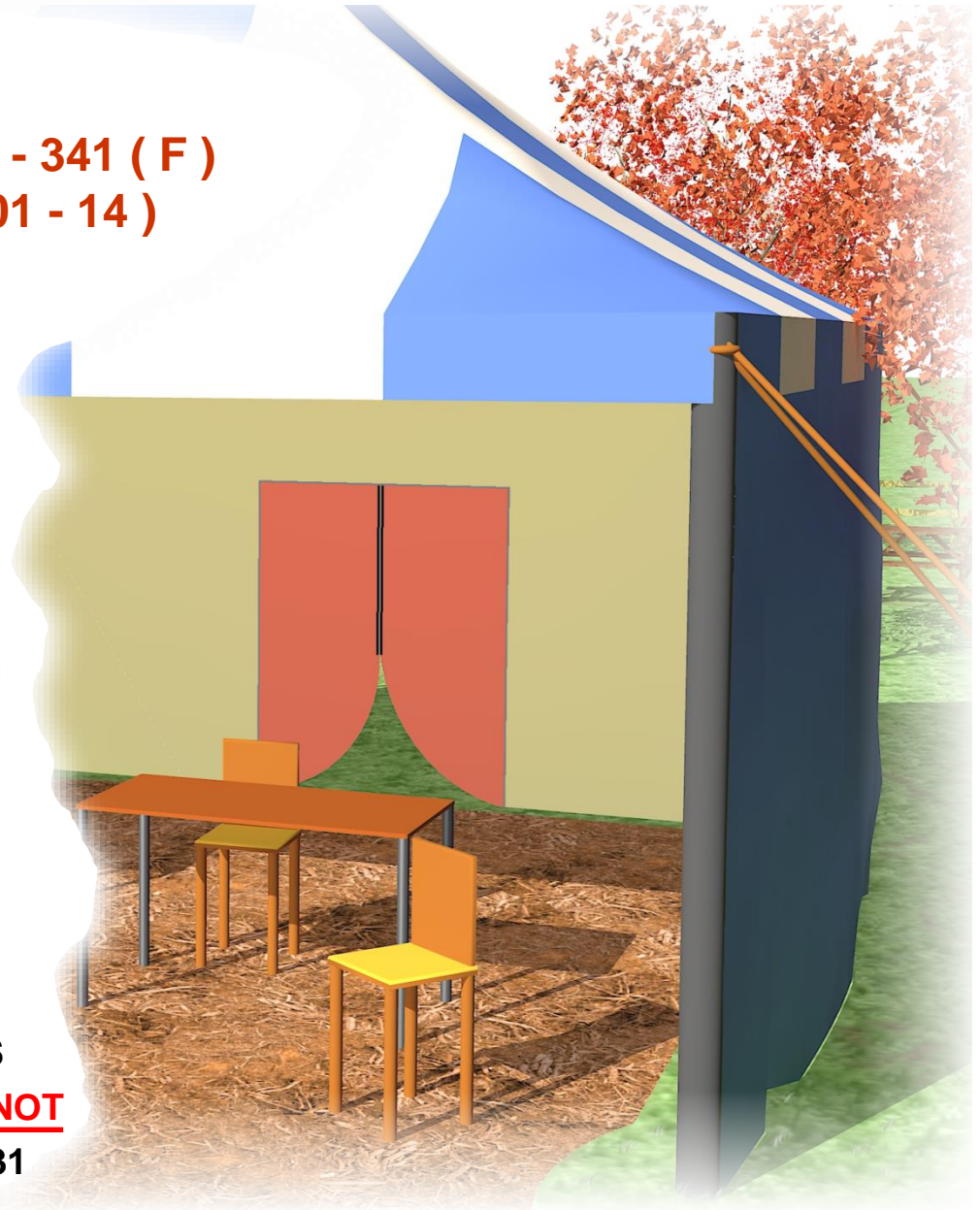




# MEANS OF EGRESS

**Amendment; LSA Doc. # 13 - 341 ( F )  
675 IAC 22 - 2.5 ( eff. 12 - 01 - 14 )**

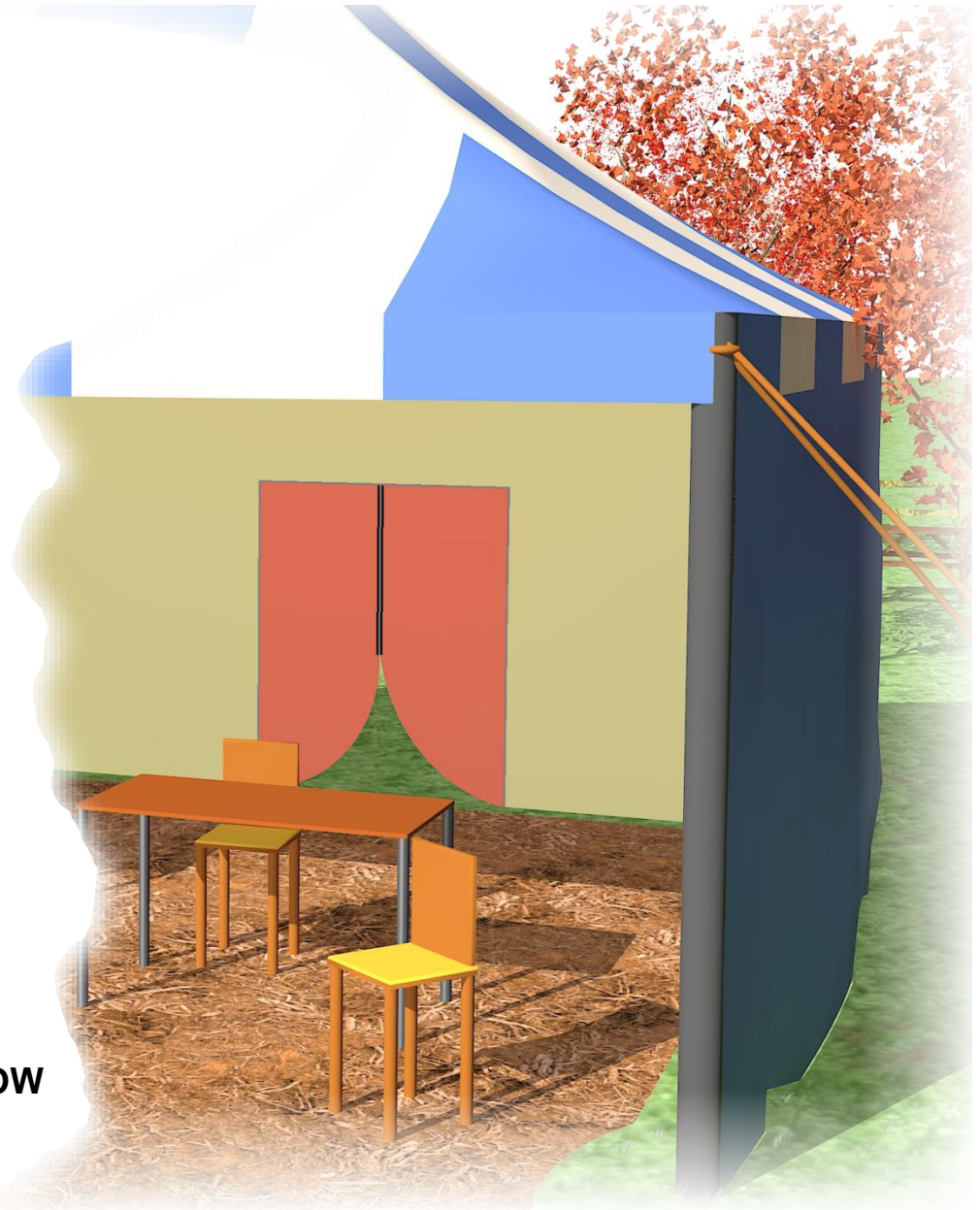
- THE 3 CODE SECTIONS AMENDED IN THE *SCOPE* ARE 3104.7, 3104.15.5 AND 3104.15.6
- THESE 3 CODE SECTIONS PERTAIN TO OPEN OR EXPOSED FLAME AND / OR COOKING
- THE MEANS OF EGRESS FOR THIS TENT HAS NOTHING TO DO WITH OPEN FLAME, ETC., THEREFORE,
- DUE TO THE WAY THE *SCOPE* HAS BEEN WRITTEN, THIS TENT DOES **NOT** HAVE TO MEET ANYTHING IN CH. 31



# MEANS OF EGRESS

## “Scope” Tents

- DUE TO THE *SCOPE*, THIS TENT DOES **NOT** HAVE TO MEET SEC. 3103.12, *MEANS OF EGRESS*
- THIS SLIDE PERTAINS TO ALL OF THE REQUIREMENTS FROM SEC. 3103.12.1 THROUGH SEC. 3103.12.8
- THE REMOVAL OF THE SIDEWALLS OR DROPS DOES **NOT** CHANGE HOW THIS SCENARIO IS HANDLED

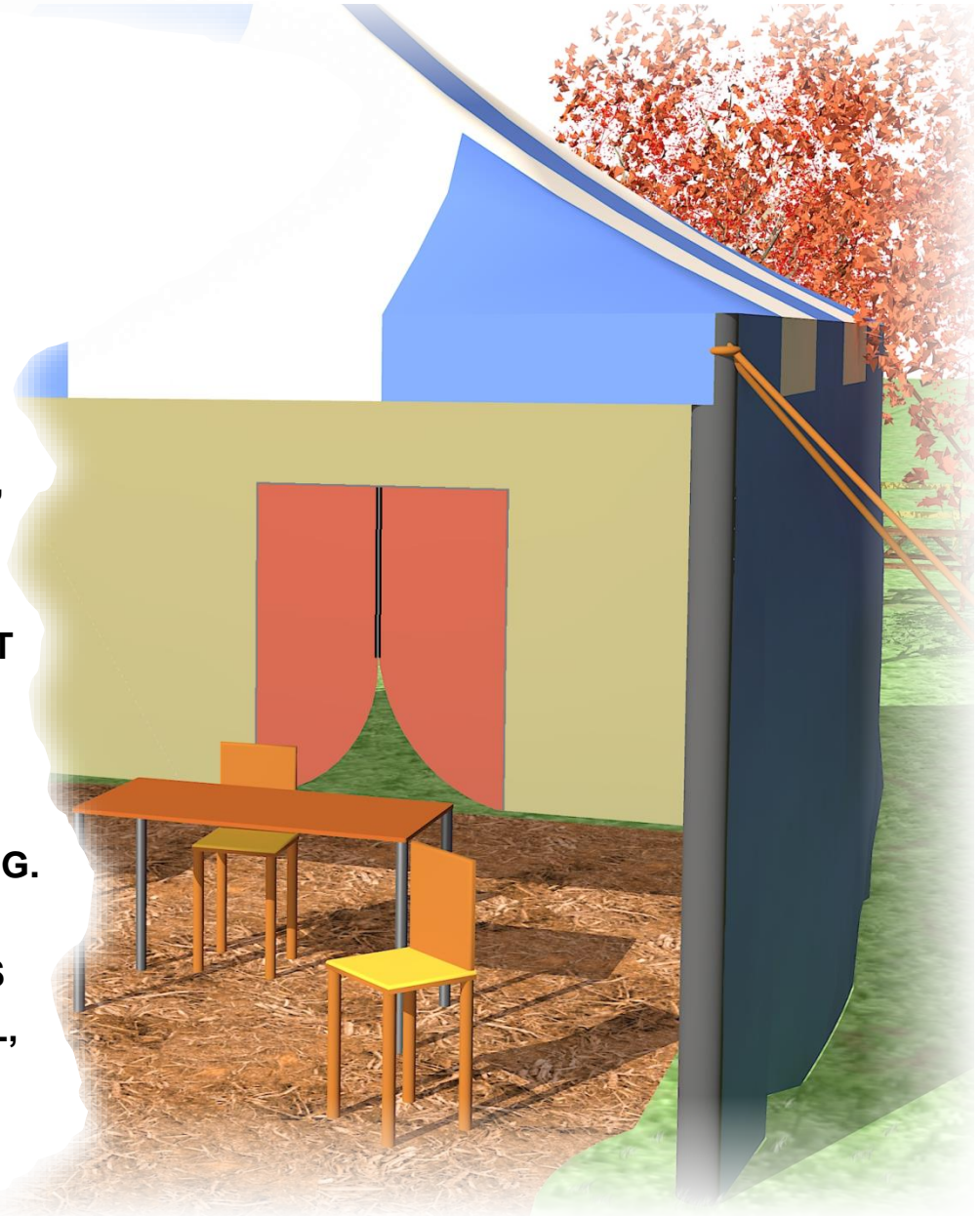


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## “Scope” Tents

- THROUGHOUT THIS PRESENTATION, THE AMENDMENT TO THE *SCOPE* HAS BEEN WELL DOCUMENTED. IN A “SCOPE” TENT THIS AMENDMENT REMOVES ALL OF THE REQUIREMENTS FOUND IN CH. 31 EXCEPT THOSE REGULATING OPEN OR EXPOSED FLAME AND/OR COOKING. IT IS IMPORTANT TO NOTE, THIS INCLUDES THE MEANS OF EGRESS REQUIREMENTS FOR THESE SMALL, 400 SQ. FT. OR LESS TENTS.



# **SUMMARY:** the following code sections govern this scenario

## ■ **Sec. 3101.1 – Scope**

THIS IS THE ONLY CODE  
SECTION THAT APPLIES IN CH. 31.



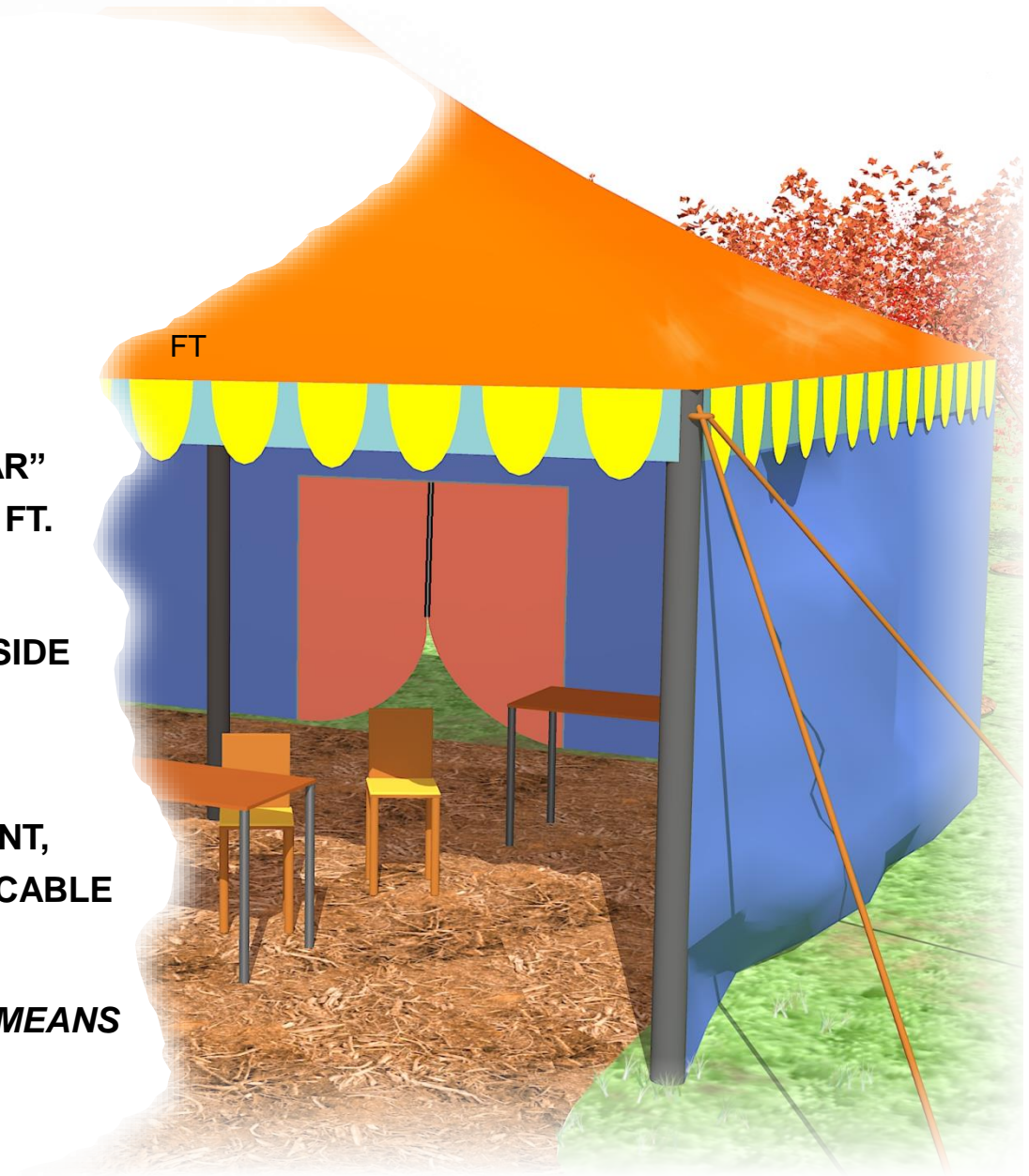
MEANS OF EGRESS  
FOR A "SCOPE" TENT



# MEANS OF EGRESS

## “Regular” Tents

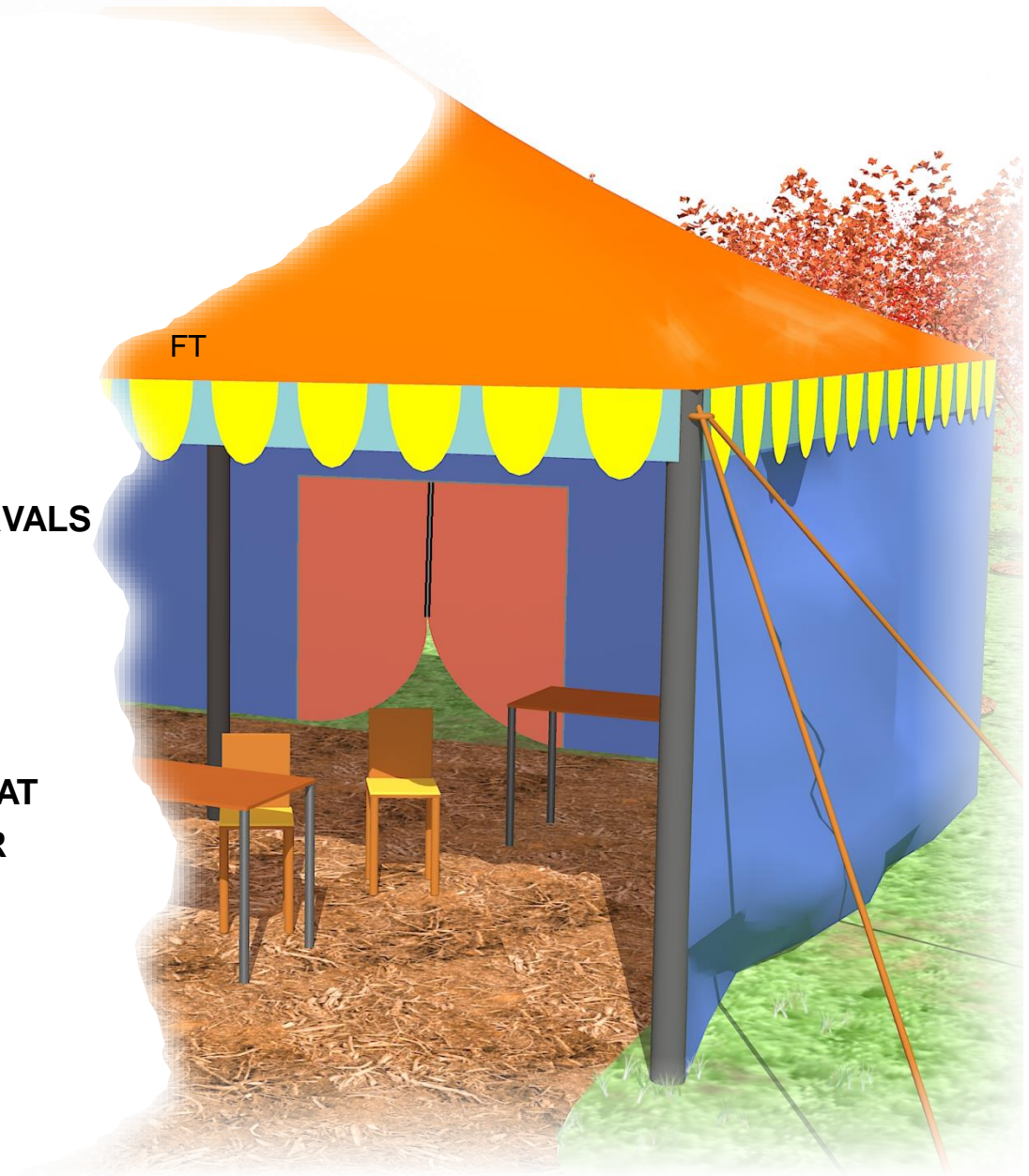
- THIS SCENARIO IS A “REGULAR” TENT; IN EXCESS OF 400 SQ. FT.
- WITH CHAIRS AND TABLES INSIDE THE TENT
- DUE TO THE SIZE OF THIS TENT, ALL OF CHAPTER 31 IS APPLICABLE
- THEREFORE, SECTION 3103.12, *MEANS OF EGRESS*, APPLIES



# MEANS OF EGRESS

## Distribution

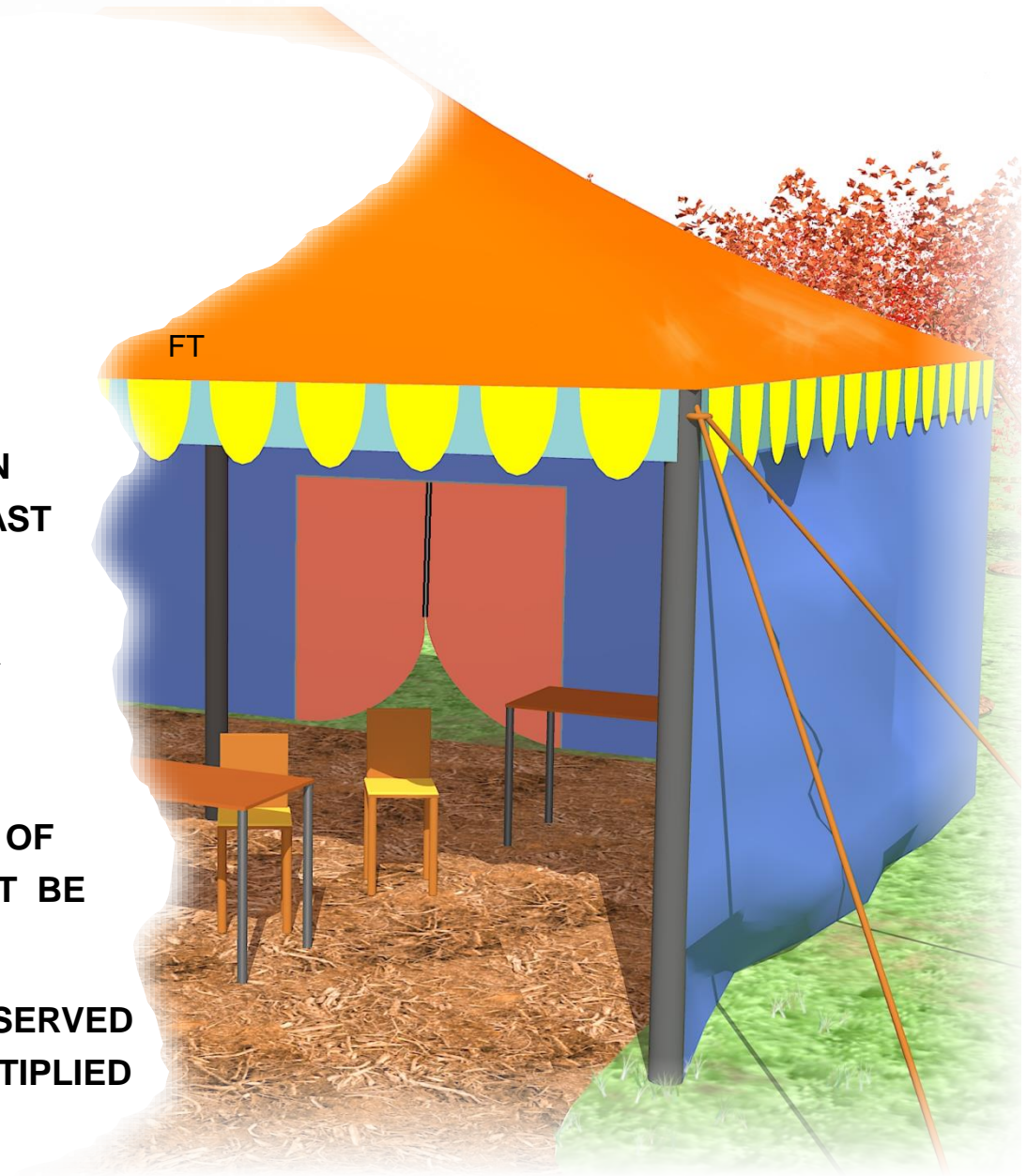
- EXITS SHALL BE SPACED AT APPROXIMATELY EQUAL INTERVALS AROUND THE PERIMETER OF THE TENT, AND
- SHALL BE LOCATED SUCH THAT ALL POINTS ARE 100 FEET OR LESS FROM AN EXIT ( THINK TRAVEL DISTANCE )



# MEANS OF EGRESS

## Number

- TENTS, OR A USABLE PORTION THEREOF SHALL HAVE AT LEAST ONE EXIT, AND
- NOT LESS THAN THE NUMBER OF EXITS REQUIRED BY TABLE 3103.12.2
- THE TOTAL WIDTH OF MEANS OF EGRESS IN INCHES SHALL NOT BE LESS THAN
- THE TOTAL OCCUPANT LOAD SERVED BY A MEANS OF EGRESS MULTIPLIED BY 0.2 INCHES PER PERSON







## NUMBER

TABLE 3103.12.2

OCCUPANT LOAD	MINIMUM NUMBER OF MEANS OF EGRESS	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)	
		Tent	Membrane structure
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96
2,000 to 2,999	6	120	96
Over 3,000 <sup>a</sup>	7	120	96

For SI: 1 inch = 25.4 mm

- a.** When the occupant load exceeds 3,000, the total width of means of egress (in inches) shall not be less than the total occupant load multiplied by 0.2 inches per person.

# MEANS OF EGRESS

## Exit openings from tents

- EXIT OPENINGS FROM TENTS SHALL REMAIN OPEN UNLESS COVERED BY A FLAME - RESISTANT CURTAIN
- CURTAINS SHALL BE FREE SLIDING ON A METAL SUPPORT. THE SUPPORT SHALL BE A MIN OF 80" ABOVE THE FLOOR LEVEL AT THE EXIT



# MEANS OF EGRESS

## Exit openings from tents, con't.

- THE CURTAINS SHALL BE SO ARRANGED THAT, WHEN OPEN, NO PART OF THE CURTAIN OBSTRUCTS THE EXIT
- CURTAINS SHALL BE OF A COLOR, OR COLORS, THAT CONTRASTS WITH THE COLOR OF THE TENT





## **aisle**



**THE WIDTH OF AISLES WITHOUT FIXED SEATING SHALL  
BE IN ACCORDANCE WITH THE FOLLOWING:**

**1. IN AREAS SERVING EMPLOYEES ONLY, THE MINIMUM  
AISLE WIDTH SHALL BE 24 INCHES BUT NOT LESS  
THAN THE WIDTH REQUIRED BY THE NUMBER OF  
EMPLOYEES SERVED.**

**2. ...**

**CON'T.**

## **AISLE**



**THE WIDTH OF AISLES WITHOUT FIXED SEATING SHALL  
BE IN ACCORDANCE WITH THE FOLLOWING:**

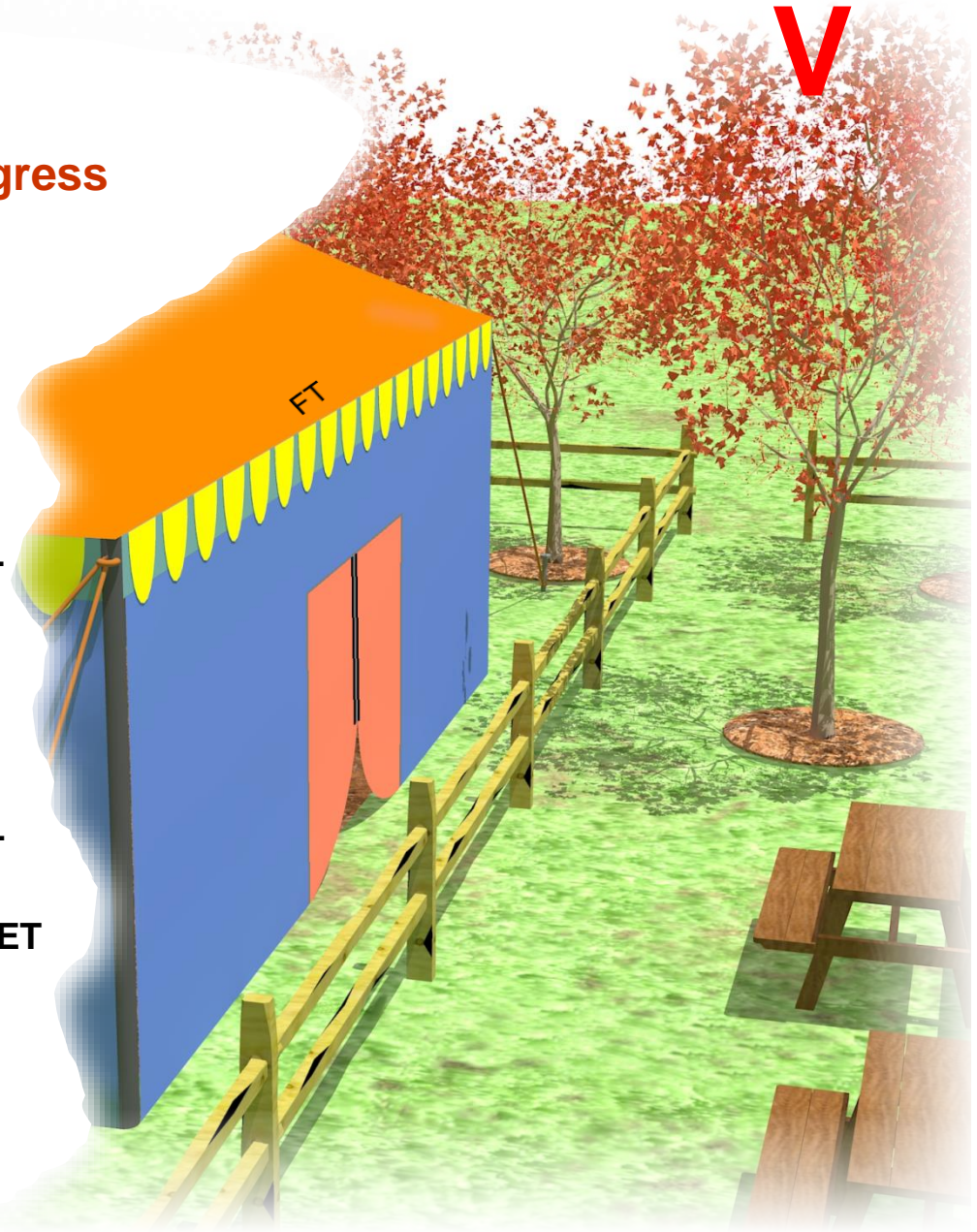
**1. ...**

**2. IN PUBLIC AREAS, SMOOTH – SURFACED,  
UNOBSTRUCTED AISLES HAVING A MINIMUM WIDTH  
OF NOT LESS THAN 44 INCHES SHALL BE PROVIDED  
FROM SEATING AREAS AND AISLES SHALL BE  
PROGRESSIVELY INCREASED IN WIDTH TO PROVIDE,  
AT ALL POINTS, NOT LESS THAN 1 FOOT ...**

# MEANS OF EGRESS

## Maintenance of means of egress

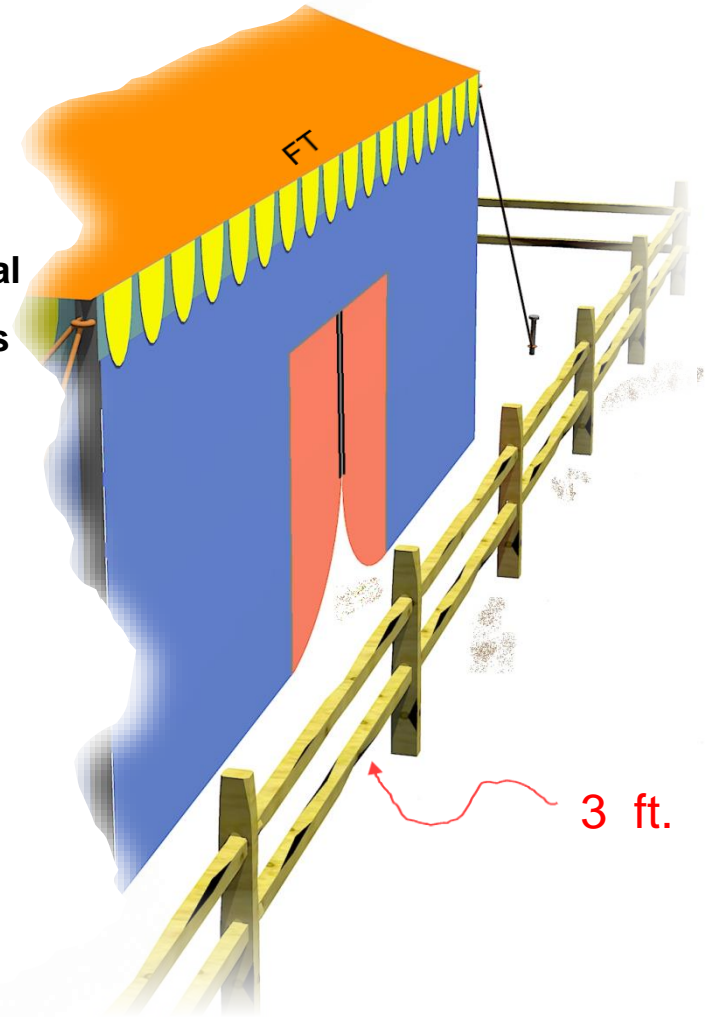
- THE REQUIRED WIDTH OF EXITS, AISLES AND PASSAGEWAYS SHALL BE MAINTAINED AT ALL TIMES TO A PUBLIC WAY
- GUY WIRES, GUY ROPES AND OTHER SUPPORT MEMBERS SHALL NOT CROSS A MEANS OF EGRESS AT A HEIGHT OF LESS THAN 8 FEET
- THE SURFACE OF MEANS OF EGRESS SHALL BE MAINTAINED IN AN APPROVED MANNER





## Maintenance of means of egress, con't.

- In this scenario, the tent has been placed too close to the fence. This view is showing the rear exit from a 616 sq. ft. tent. (The sidewalk leading to the parking lot is at the bottom of the picture.) A typical occupant load for this tent would be 88 people. This is found by using a factor of 7 from Table 1004.1.2, IFC, 2014 ed. (a factor of 7 net is described as concentrated, chairs only – not fixed.)  $616 \div 7 = 88$ . Using Table 3103.12.2, *Number*, one sees that 2 exits are required and the minimum width of each means of egress is 72 inches. In this case, the required width of exits equals 6 feet and this section states the 6 foot width has to be maintained to a public way. The tent is only 3 feet from the fence.

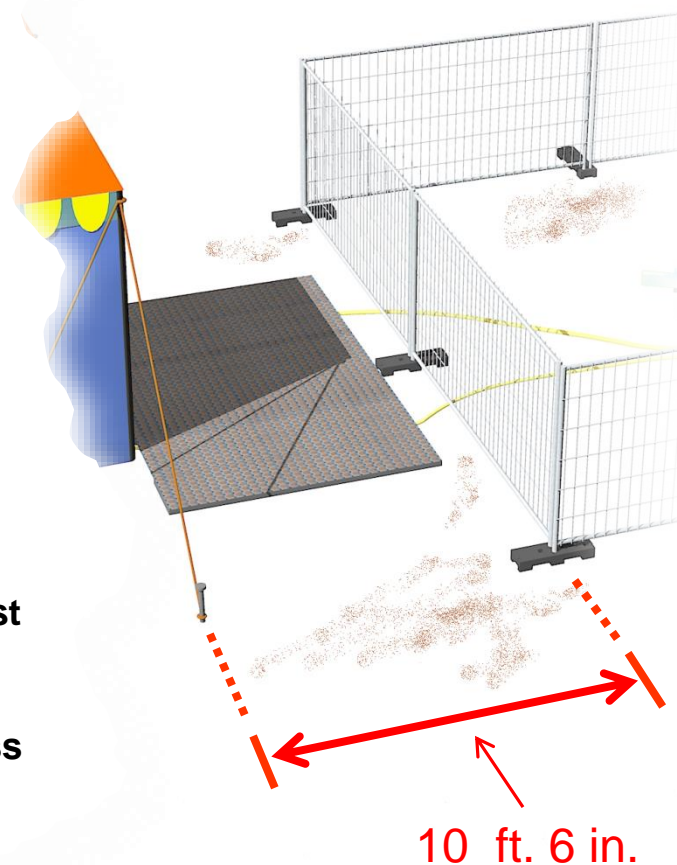


# MEANS OF EGRESS

## Maintenance of means of egress, con't.

- In this scenario, the tent has been placed properly in relationship to a fence separating a generator from the public. (The sidewalk is once again at the bottom of the picture.) The distance is 10 feet 6 inches. Using the same occupant load calculations from the previous example, we know the required width of exits has to be at least 6 feet. The distance is more than that so Sec. 3103.12.8 is met.

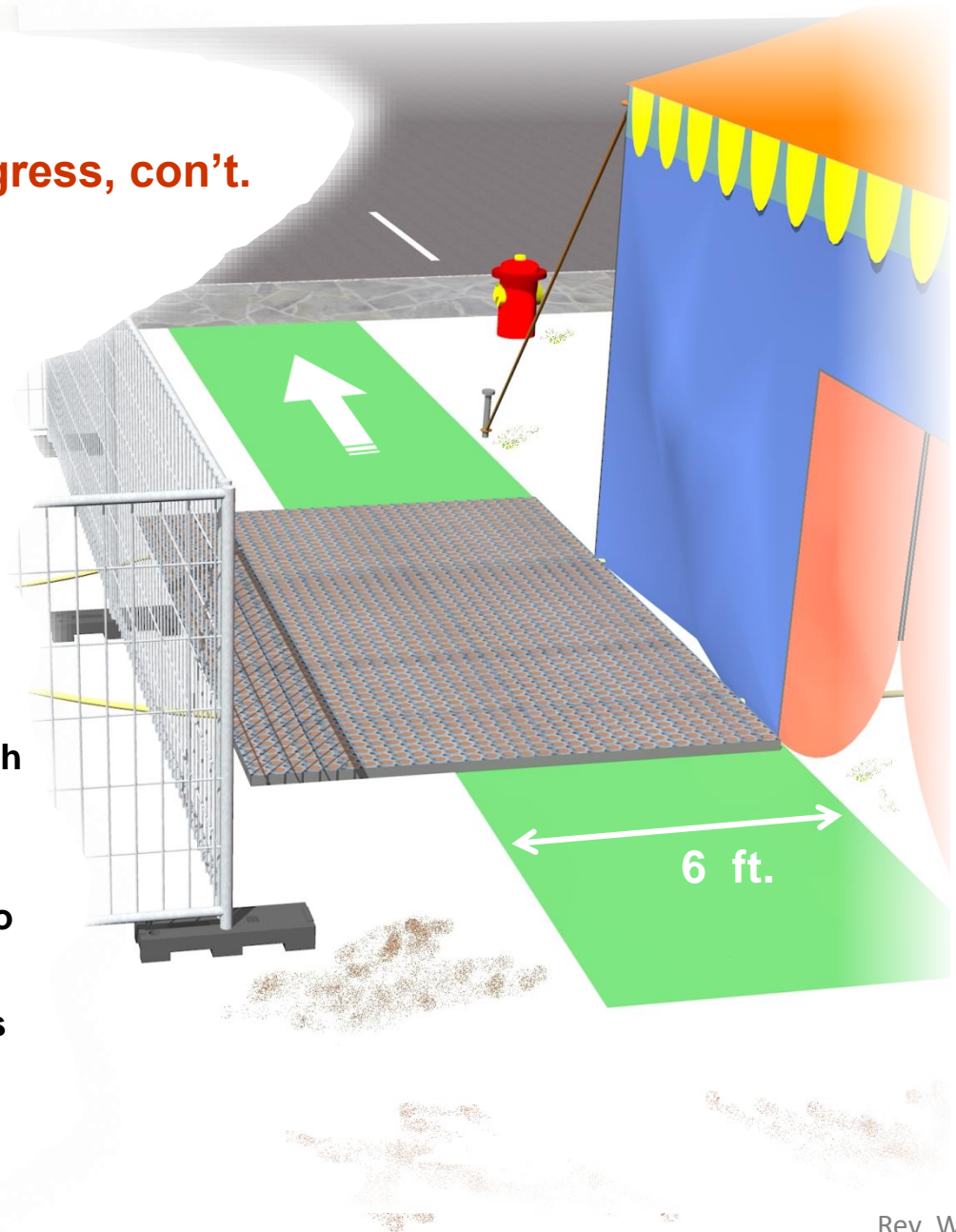
**NOTE:** the power cables would have to be covered or protected to eliminate the trip hazard. See the last part of Sec. 3103.12.8, *Maintenance of means of egress*, which states, “the surface of means of egress shall be maintained in an approved manner”.



# MEANS OF EGRESS

## Maintenance of means of egress, con't.

- This is the rear of the tent but looking from the other side toward the sidewalk and parking lot. Using the same occupant load calculations from the previous example, we know the required width of exits has to be at least 6 feet. The green path is showing a 6 foot width which has to be maintained to the public way.  
**NOTE:** as mentioned in the previous slide, the power cables have been covered to eliminate the trip hazard.





# MEANS OF EGRESS

## Maintenance of means of egress, con't.

- Finally, there is one last point to study concerning the last sentence in this section. This sentence states, “the surface of means of egress shall be maintained in an approved manner”. The design of the exit discharge from a building is very different from a tent. The common surfaces in and around a tent are grass, dirt, gravel and mulch. These surfaces may change daily so the fire code official must constantly monitor them and maintain a level of safety.





## **Chapter 31, 2014 Ed. Indiana Fire Code**

# **Tents And Other Membrane Structures**

**Presented by the State Fire Marshal's Office**

**Division of Fire and Building Safety**